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SCHOOL-BASED DRUG ABUSE PREVENTION: PROMISING AND SUCCESSFUL PROGRAMS

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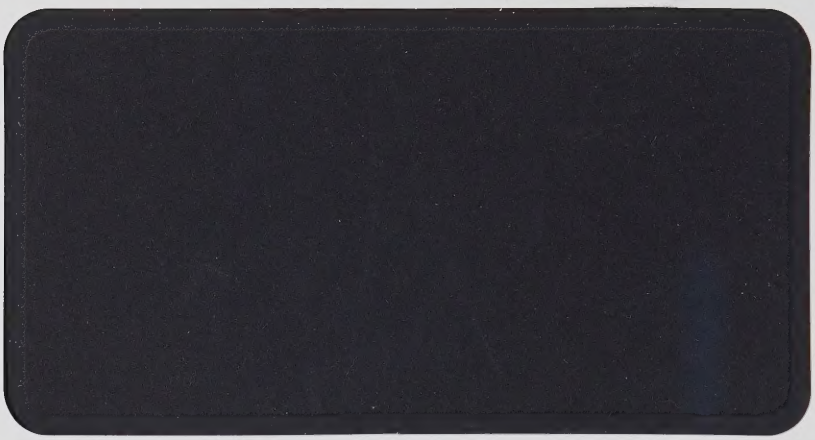

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CHAPTER 1

Risk and Protective Factors for Drug Use

Prevention programs often are designed to enhance "protective factors" and to reduce "risk factors." Protective factors are those associated with *reduced* potential for drug use. Risk factors are those that make drug use *more* likely. Research asserts that for individuals who begin using illicit substances at an early age, several risk factors may increase the likelihood of continued and problematic use in later ages, when substance-related crime becomes much more likely.[1] Risk factors include: negative peer associations, unrealistic beliefs about the prevalence of illicit drug consumption, inconsistent or abusive parenting, school exclusion, and feelings of low self worth. Research has also demonstrated that many of the same risk and protective factors apply to other behaviors such as youth violence, delinquency, school dropout, risky sexual behaviors, and teen pregnancy.

Responding to these risky behaviors before they become problematic can be difficult. Furthermore, it is important to understand that risk factors do not, in and of themselves, determine drug use and abuse. Studies of multiple risk factors have found that risk factors have a cumulative effect – i.e., the more risk factors a youth is exposed to, the greater the likelihood that he or she will engage in delinquent or violent behavior.[2] Longitudinal studies have found that a 10-year-old exposed to six or more risk factors is ten times more likely to be violent by age 18 as a child of the same age who is exposed to only one factor.[3]

Risk and protective factors can be divided into five categories or domains: individual characteristics, peer group, school, family, and neighborhood/community.

KEY RISK AND PROTECTIVE FACTORS FOR DRUG USE

Catagories/ Domains	Risk Factors[4]	Protective Factors
Community	• Community disorganization • Laws and norms favorable to drug use • Perceived availability of drugs	• Community cohesion • Community norms not supportive of drug use
School	• Academic failure • Little commitment to school	• Participation in school activities • School bonding
Family	• Parental attitudes favorable to drug use • Poor family management • Family history of antisocial behavior	• Family sanctions against use • Positive parent relationships
Peer/Individual	• Early initiation of antisocial behavior • Attitudes favorable to drug use • Peer drug use	• Positive peer relationships • Network of non-drug using peers

The relationship between the number and type of risk factors affects an individual's risk of becoming a substance abuser and/or engaging in delinquent behavior. With regards to substance use in the community domain, Arthur et al.[5] shows that neighborhoods where youths report low levels of bonding to the neighbourhood have higher rates of juvenile crime and drug use. Perceptions about the availability of cigarettes, alcohol, marijuana and other illegal drugs have been shown to predict rates of use of these substances.

In the school domain, Arthur et al.[6] state that beginning in late elementary grades, academic failure increases the risk of both drug use and delinquency. Further, factors such as liking school, time spent on homework, and perceiving schoolwork as relevant are negatively related to drug use.

At the level of the family it was found that parents who use illegal drugs, are heavy users of alcohol, or are tolerant of children's use, have children who are more likely to use drugs themselves. Other risk factors in the family domain are lack of family bonding (poor relationship), parental management (parental control) and family disturbance (conflict).[7] The strongest and most consistent evidence links family interaction to drug use. The key elements of family interaction are parental discipline, family cohesion and parental monitoring.

At the peer or individual level, it is clear that the earlier the onset of *any* drug use, the greater the involvement in other drug use and the greater the frequency of use. Research shows that risk and protective factors are complex and take on varying levels of importance at different life stages. Associating with drug-abusing peers is a more significant risk factor in adolescence than childhood, when family focused risk factors typically have more influence.

Attitudes and Behaviours Towards Drug Use

- **Attitudes towards drug use:** Youths who express positive attitudes to drug use and/or associate with peers who engage in alcohol or substance abuse are more likely to engage in the same behaviour.[8]
- **Prior drug use:** Onset of drug use prior to the age of 15 is a consistent predictor of later drug abuse.[9]
- **Delinquent behaviour and drug consumption:** The prevalence of self-reported delinquent behaviour among high school students was highest among those who had reported drug consumption.[10]

1.1 Youth, Drugs and Crime

With numerous topical research studies emerging, new light is being shed on the relationship between drugs and crime. Although the relationship between drugs and crime is complex, research has brought forward relevant knowledge allowing practitioners and policy-makers to design frameworks and programming that address the risk factors for substance abuse and delinquency as they often overlap.

Drug Use and Trends

According to the Canadian Addictions Survey 2005,[11] roughly 62.3% of youth aged 15-17 engaged in early use of alcohol and 29.2% in early cannabis use in the 12 months prior to the survey. The survey also shows that compared to earlier studies, the age of first use tends to be lower. Conversely, recent data from provincial student drug use surveys suggests that age of first use has risen in recent years. Nevertheless, early drug and alcohol use and later problematic use are known risk factors for future delinquency among youth. In fact, subsequent problematic substance abuse can lead to individuals engaging in criminal activity in order to support their addiction. Individuals most commonly engage in shoplifting, prostitution and breaking and entering as a method to obtain alcohol and illicit drugs.[12] Preventing substance abuse among youth will not only provide health benefits, but will also reduce the risk for future delinquent and criminal behavior as several risk and protective factors are common to both substance abuse and criminal behaviour.

The Alberta Youth Experience Survey (TAYES, 2005) measured alcohol, tobacco, and illicit drug use among Alberta students in grades 7 through 12.[13] This survey states that 26.7% of students self-reported cannabis use within the twelve months prior to the survey. Also, 25.4% reported using any illicit drug (including cannabis) in the past year. The most commonly used illicit drugs were hallucinogens such as magic mushrooms followed by ecstasy, cocaine, solvents, stimulants, glue and crystal methamphetamine, in descending order. TAYES and other regional surveys on adolescent drug use[14] tend to confirm and substantiate the national prevalence findings on youth drug use (both licit and illicit).

Research indicates that the Yukon, Northwest Territories and Nunavut have a large number of isolated Aboriginal communities, which have disproportionately high rates of illicit drug consumption when compared to the national average. In general, Aboriginal offenders in Canada report more serious substance abuse problems than non-Aboriginal offenders[15] with 38% of male Aboriginal offenders having serious problems with alcohol versus 16% of non-Aboriginal males. The 2002-2003 First Nations Regional Longitudinal Health Survey, indicates that the highest risk group for both drinking and drug use among Aboriginal people was young males aged 18-29. Regarding youth in custody, Justice Canada[16] found that 57% of Aboriginal youth in custody had a confirmed substance abuse problem.

Using data from the Canadian Addiction Survey[17] it was estimated that 26.7% of youth were using tobacco in the twelve months prior to the survey. While the health risks of cigarette smoking are well known, what is not common knowledge is the finding that the use of tobacco by youth is associated with more frequent use of alcohol, cannabis and other illicit drugs, relative to youth who do not smoke.[18] Among those under age 20, smokers were 14 times more likely to consume alcohol than were their non-smoking peers and were also more likely to engage in binge drinking (five or more drinks on one occasion). Davis[19] claims that tobacco smoking in youth is a good indication that youth may be engaging in other risky behaviour.

Drug Use and Delinquency

It is important to understand the issues facing youth at risk of using or already using drugs and alcohol because of the association with other antisocial and violent behaviors. The criminological literature is replete with studies that correlate drug involvement with criminal activity.[20] The black box in this area is not *whether* drug-related crime occurs, but rather the mechanics of *how* it occurs. For this, there is no ready answer. Rather, research findings reveal a gamut of responses which vary depending on the kind of drugs in question, individual factors, cohort demographics, psychological predispositions, economic circumstances, biological markers and environmental influences. However, these links will not be addressed as it is beyond the scope of this paper.

Onset of delinquency typically peaks in mid-adolescence and then declines dramatically after age 18. On the other hand, illicit drug use usually begins in mid-adolescence, and initiation of some substances continues into young adulthood.[21] Elliot and colleagues[22] found that rates for serious delinquency decreased by 70% as their sample aged from adolescence to young adulthood, but rates for polydrug use increased by 350% during this same period. They also reveal the most typical trajectory, namely that among subjects who initiated delinquency and polydrug use, minor delinquency almost always came first and, in fact, no one initiated marijuana or polydrug use before minor delinquency. All this to say that the relationship between drugs and crime is complicated but relevant.[23]

The exact nature of the link between drugs and crime remains unclear and should be examined among different types of populations. However, common risk factors between drugs and crime as well as how crime and substance abuse can precipitate each other are the strongest known links. Pernanen and colleagues[24] documented the proportions of crimes associated with alcohol and other drugs in Canada, and confirmed the close association between the use of psychoactive substances and criminal behaviour. Research suggests that substance use/abuse and involvement in crime, including drug, gun, and gang violence, have similar risk factors. These risk factors create different degrees of pressure on the individual and may give rise to high-risk behavior, which, in turn, lead to levels of substance use/abuse and crime that can be categorized according to a continuum of severity. As these actions progress along the continuum, substance use/abuse and antisocial deportment become more firmly entrenched, with one problem reinforcing the other, and vice versa.

Research in the trajectories of young delinquents has also established that early, persistent delinquent behavior accompanied by substance abuse, is a strong predictor of an adult criminal trajectory. Social surveys have demonstrated an increase in the rates of self-reported problem use of illegal substances since 1990[25] and higher levels of acceptance of drug use among youth.[26] In a recent study of self-reported delinquency of youth in Toronto,[27] alcohol and drug abuse was more widespread among delinquent youth. Those who reported never engaging in delinquent behaviour were less likely to have used alcohol (34%) and to have gotten drunk (23%) than those who stated they had engaged in one or more types of delinquent behaviour (73% and 48% respectively).

In addition, jurisdictions with a high youth population may also have elevated rates of drug-related offences[28] as youth are disproportionally more likely to engage in substance abuse compared to adults. Rates per 100,000 people for drug-related violations in 2002 were highest for individuals between the ages of 18 and 24 in 2002 followed by 12-17 year-olds. Erickson & Butters[29] also found that for Toronto youth who were not attending school regularly, and for youth who were in custody, selling drugs significantly increased the odds of committing gun violence against others.

Substance abuse, particularly alcohol, may be a precipitating or aggravating factor in the commission of an offence by either impairing an individual's ability to respond appropriately to difficult situations or by rendering individuals more vulnerable to victimization. The 2004 General Social Survey on Victimization[30] reports that in roughly 52% of violent incidents, the victim believed that the incident was related to the offender's use of alcohol or drugs.[31] Moreover, multiple studies have documented the strong link between consumption and sexual assault. In fact, more than half of offenders have consumed alcohol or drugs before committing a sexual assault.[32] Factors that may explain both drug use and criminal activity include poverty, lack of social values, personality disorders, association with drug users and/or delinquents, and loss of contact with agents of socialization.

Drug Use and Victimization

Another important dimension of substance abuse is its link to victimization, particularly its negative impacts on family life. Parents who suffer from substance dependency are often implicated in negligence, maltreatment and sexual or physical abuse of their children.[33]

Data from an American National Youth Survey[34] found that childhood physical abuse proved a strong predictor of young adults' current substance use. Indeed, children who suffer these abuses are more likely to develop a dependency on alcohol or drugs.[35] In fact, 10-83% of children who were victims of sexual assault developed an addiction to alcohol.[36]

The Drugs, Alcohol and Violence International (DAVI), a joint Canada-U.S study, provides evidence on the relationships between gangs, guns and drugs in Toronto and Montréal. Results indicate a correlation between gangs and drugs in schools, 28.7% of boys (14 to 17) in Montréal and 15.1% in Toronto have brought a gun to school. School dropouts who get involved in drug selling are at higher risk of being involved in gun-related violence.[37]

CHAPTER 2

Elements of Good Practice for Drug Prevention

The good news for practitioners is that a large number of school-based drug prevention programs have been researched and evaluated. This is not to say that there isn't a need to raise the rigor of evaluations and conduct more meta-analyses and systematic reviews, but rather that the good work that has been done in this field has provided concrete, attainable processes and strategies for program practitioners to follow. This section outlines some key lessons to keep in mind in implementing school-based drug prevention programs.

Often it is the case that a strategy can best be understood by illustrating the flipside namely, what *doesn't* work (or doesn't work so well). For example, theses programs are largely *ineffective* for reducing substance use:[38]

- Information dissemination programs which teach primarily about drugs and their effects,
- Fear arousal programs that emphasize risks associated with drug use,
- Moral appeal programs that teach about the evils of use and,
- Affective education programs which focus on building self-esteem, responsible decision-making, and interpersonal growth.

On the contrary, approaches which include resistance-skills training to teach students about social influences to engage in substance use and specific skills for effectively resisting these pressures alone or in combination with broader-based life-skills training *do* appear to reduce substance use.[39]

Studies suggest that the reason why these components of drug prevention programs work is because they begin from the premise that youth behaviours in regards to alcohol and drug use are strongly affected by social context, biological and emotional needs, and real and imaginary pressure from peers and others. Interventions that focus solely on healthy attitudes and providing factual information in a classroom setting, fail to take environmental pressures into account at their own peril.

Generally, effects for instructional substance use prevention programs decrease rather than increase over time in the absence of continued instruction.[40] Even so-called 'model' programs need to carefully attend to issues of dosage and duration to see impacts. Research has shown that programs need to be delivered at certain critical stages of transition (i.e. when moving from elementary to junior high school) when youth might be more receptive to the message. With regards to timing and intensity of the program, there is evidence that most of the successful programs are intensive and long-term, incorporating booster sessions.[41]

More comprehensive social competency promotion programs work better than programs which do not focus on social competencies and those that focus more narrowly on resistance skills training. Cognitive-behavioral training methods such as feedback, reinforcement, and behavioral rehearsal are more effective than traditional lecture and discussion. It is clear that the 'didactic' approach is not as well received as an interactive, creative approach.

The 'social influences' approach – based on the belief that young people begin to use drugs because of their self-image and/or social pressures – is promising. This approach suggests that, in order to resist substances, young people need to be able to use counter arguments effectively.[42] Skara & Sussman,[43] in their summary of the effectiveness of program evaluation studies, found long-term empirical evidence of effectiveness of social influences programs in preventing or reducing substance use for up to 15 years after completion of programming.

The evidence suggests that teachers ought to employ 'normative' information in their approach. Students tend to over-estimate the extent to which their peers use drugs, miscalculating what is the 'normal' level of experience with drugs. Normative components may play a critical role in encouraging students to use peer resistance strategies. In the absence of a normative component, research reveals that resistance training appeared relatively ineffective.

Attention needs to be paid to the manner in which drug-education programs are carried out by teachers.[44] Program fidelity is quite important from an evidence-based approach, while considering that programs are also implemented and adapted to the local priorities related to drugs and crime. Those teaching the program need to be engaging, youth focused and interactive. In fact, it has been shown that young people use drug prevention information if it is accurate, honest and delivered by people they trust. Finally, successful school-based programs are often implemented as part of a broader integrated effort to address drug and crime problems in the local community.

2.1. Evaluation of Drug Abuse Prevention Programs

Recent evaluations of programs touted under the 'model' or 'best-practice' banner have been scrutinized by evaluators, and what follows are some key points that should be considered when choosing drug abuse prevention programs:

- There is no single agreed upon set of criteria to identify model programs.[45]
- Even when considered exemplary, programs are not guaranteed to work in a different context.
- Effects of a program do not last over the longer term.

Problems that typically arise in the evaluation phase of school-based drug prevention programs include group randomization, lack of consent to participate, attrition from the study, and influential interactions among participants within a study.[46] In the case of drug prevention programs, it is especially problematic if those who could potentially derive the most benefit from the program are also those who are unlikely to receive consent to participate in the first place or dropout from the program before completion.

Another area of concern is the length of the follow-up period. Few drug prevention evaluations examined outcomes more than two years after the end of project implementation. It can be said that any positive early results tended to dissipate after a few years.[47] Most of the programs are more effective in changing attitudes and increasing knowledge than they are in changing drug use behavior.[48]

While this knowledge could lead to a pessimistic view of school-based drug prevention programs, it serves a better purpose in guarding against unrealistic expectations in terms of achieving sustained behavioral outcomes. It also underlines the need for processes and evaluations that are rigorous, consistent, transparent and of a longer term nature than is presently the case. The literature suggests that school-based drug prevention programs ought to be but one piece of a larger picture. That larger picture involves a broader scale, community wide effort that organizes the strengths and resources of multiple agencies to combat drug use and crime.

Given that local tailoring of programs and contextual adaptation is fundamental to program success, what is of greater significance than merely copying a program is to ensure that the principles that are found in the *most promising and successful* programs are considered when developing any *drug* prevention program.

CHAPTER 3

School-Based Drug Prevention Programs[49]

Prevention programs can be implemented in various settings such as the school, community and family. Youth spend much of their time in a school environment, and schools are important places to implement prevention programs that seek to reduce (and eliminate) the risk of engaging in early use and future delinquency. School-based settings provide opportune environments in which to provide knowledge and tools to prevent and reduce youth drug involvement.

Numerous drug prevention programs have been evaluated over the years and some have been shown to have positive results. What is apparent from the research and evaluation literature is that select components of school-based drug prevention programs are proving promising and have shown their worth in different school environments over time.[50]

This section summarizes key aspects of effective[51] school-based approaches. Programs are distinguished between targeted programs[52] (SUCCESS and TND) and universal programs[53] (ALERT and LST).

3.1. Targeted Programs

Project SUCCESS[54]

Project SUCCESS (Schools Using Coordinated Community Efforts to Strengthen Students), is a program specifically designed for high-risk youth (a targeted intervention). The program places highly trained professionals in schools to provide a range of substance use prevention and early intervention services. Project SUCCESS was tested with 14 to 18-year-old adolescents who attended an alternative school that separated them from the general school population. Participants typically came from low to middle-income, multi-ethnic families. SUCCESS claims to prevent and reduce substance use among high-risk, multi-problem high school adolescents.

Project SUCCESS works by building partnerships established between a prevention agency and alternative school. A trained individual who is experienced in providing substance abuse prevention counseling to adolescents is recruited to work in the alternative school as a Project SUCCESS Counselor (PSC). This individual will provide the school with substance abuse prevention and early intervention services to help decrease risk factors and enhance protective factors related to substance abuse.

Program components include:

- **Prevention Education Series**—An eight-session substance abuse prevention education program conducted by the PSC.
- **Individual and Group Counseling**—Following assessment, a series of eight to twelve time-limited individual or group sessions is conducted in the school.
- **Parent Programs**—Project SUCCESS includes parents as collaborative partners in prevention through parent education programs.
- **Referral**—Students and parents who require treatment, more intensive counseling, or other services are referred to appropriate agencies or practitioners in the community

Two evaluation studies of Project SUCCESS have been conducted.[55] The first study began in September 1995 in Westchester County, New York and used a pre-test and post-test comparison group design with a sample of 425 students in three alternative secondary schools serving high-risk, multi-problem adolescents. The post-test data was gathered in the second year of Project SUCCESS and asked for 'previous 30-day use' to the students who were users at pre-test.[56] After 1 year, the evaluation showed decreases in substance use and reductions in negative attitudes and behaviors among students participating in Project SUCCESS, including:

- A 37 percent decrease in substance abuse;[57]
- 23 percent of Project SUCCESS students quit using substances (compared with 5 percent in the comparison group);
- Decreased problem behavior; and
- Decreased associations with peers who used substances.

The second study[58] used a randomized repeated measures design with a sample of 363 students attending a mainstream middle school and high school. Findings indicate that after 21 months following the intervention, alcohol and drug users participating in Project SUCCESS either reduced or delayed their use of other substances compared to users in the control group. In the last month at post-test, key outcomes for alcohol and other drug users participating in Project SUCCESS were less likely to have:

- Used marijuana
- Sniffed/huffed
- Used prescription drugs
- Smoked
- Used a substance when alone.

Project SUCCESS was found to be effective with both genders, students from various ethnic groups, and across grade levels from the 9th to 12th grades.

Project Success
Key Elements

- SUCCESS stands for Schools Using Coordinated Community Efforts to Strengthen Students
- SUCCESS is a SAMHSA Model program (Substance Abuse and Mental Health Services Administration)
  - School-based program for high school (14-18 years old) high-risk adolescents in alternative schools which aims to prevent and reduce substance abuse among high-risk, multi-problem youth;
  - Involves an eight-session substance abuse prevention education program;
  - Involves individual assessments, family and individual counseling, and parent referral components;
  - Implemented by trained professionals;
  - Works by building partnerships;
  - Decreased substance use found across ethnicities and grade levels.

Project TND[59]

Project Toward No Drug Abuse (TND) is a targeted intervention and interactive program designed to help high school youths (ages 14–19) resist substance use. This school-based program consists of twelve 40- to 50-minute lessons that include motivational activities, social skills training, and decision-making components that are delivered through group discussions, games, role-playing exercises, videos, and student worksheets over a four week period. The program was originally designed for high-risk youth in alternative high schools and consisted of nine lessons developed using a motivation-skills–decision-making model. It addresses topics such as active listening skills, effective communication skills, stress management, coping skills, tobacco cessation techniques and self-control—all to counteract risk factors for drug abuse relevant to older teens.

Project TND has been rigorously evaluated. Results show that TND led to significant reductions in hard drug and alcohol use.[60] An evaluation of approximately 2,500 alternative high school students[61] from 42 high schools in Southern California revealed that those who received the intervention showed roughly half the monthly drug use frequency at follow-up as those in the control condition. The evaluation conducted on mainstream high school students also showed a significant reduction in hard drug and alcohol use among intervention students at the one year follow-up.[62] When looking at the perpetration of violence in alternative high school youth at the one year follow-up, males in the treatment groups had a significantly lower risk of victimization than the control group. They were also less likely to carry weapons.

3.2. Universal Programs

Project ALERT[63]

ALERT is a widely-used middle-school drug prevention program that was originally a universal program. ALERT claims to curb cigarette, marijuana and alcohol misuse and help even high-risk youth. Like Project SUCCESS and TND, ALERT has been evaluated and found to have promising results.[64]

ALERT is a two year classroom curriculum of eleven lessons, plus 3 booster lessons that should be delivered during the following year. It targets alcohol, marijuana and cigarette use and is designed to help students identify and resist pro-drug pressures and understand the social, emotional and physical consequences of harmful substances. It aims to motivate students against using drugs and give them the skills they need to translate that motivation into effective resistance behavior, an approach that is widely viewed as the state of the art in drug-use prevention.[65]

ALERT is a science-based program, meaning that its effectiveness has been demonstrated through rigorous (criteria typically include research design, deterrent effect, sustainability and replicability) research and in 2001, the US Department of Education named ALERT an exemplary model program. ALERT, unlike some other American programs, addresses substance *misuse* rather than simply *use*, because of the widespread acceptance of these substances amongst youth.

ALERT and many other school-based drug prevention programs draw on the tenets of social learning theory. Social learning theory focuses on the learning that occurs within a social context, and considers that people learn from one another through observation, imitation and modeling. Basically, social learning theory says that people can learn by observing others' behavior and the outcomes of those behaviors; that learning may or may not result in a behavior change; and that cognition plays a role in learning. Accordingly, awareness and expectations of future reinforcements and punishments can have a major effect on the person's behaviors.

Outcome findings from ALERT[66] showed that the program helped youth avoid risky drinking, but it did not keep students from starting to drink or help them cut back on moderate consumption. For all students, alcohol misuse scores were lower by 24% for the ALERT group after the eighteen month evaluation. For cigarette use, the ALERT group was 19% lower.

Project Alert
Key Elements

- School-based program for junior high students, ages 12-14;
- Targets alcohol, marijuana and cigarette misuse;
- Classroom curriculum involving eleven lessons and three booster lessons;
- Helps students identify and resist pro-drug pressures;
- Helps students understand the social, emotional and physical consequences of harmful substances;
- Based on social learning theory;
- Evaluated numerous times with many positive outcomes;
- Cited as effective or exemplary by various respected agencies.[67]

Project LST[68] (Life Skills Training)

The LST prevention program is a three year intervention designed to be conducted in school classrooms. LST targets tobacco, alcohol, and marijuana and offers the potential for interrupting the normal developmental progression from use of these substances to other forms of drug use/abuse.

The LST program has been designed to target the psychosocial factors associated with the onset of drug involvement. The program impacts on drug-related knowledge, attitudes and norms, drug-related resistance skills, and personal self-management and social skills. Increasing prevention-related drug knowledge and resistance skills can provide adolescents with the information and skills needed to develop anti-drug attitudes and norms, as well as to resist peer and media pressure to use drugs. Teaching effective self-management skills and social skills (improving personal and social competence) offers the potential of producing an impact on a set of psychological factors associated with decreased drug abuse risk (by reducing intrapersonal motivations to use drugs and by reducing vulnerability to pro-drug social influences).

The LST program consists of 15 class periods of 45 minutes each and is intended for junior high school students. A booster intervention has also been developed which consists of ten class periods in the second year and five class periods in the third year. The rationale for implementing the LST program at this point relates to the developmental progression of drug use, normal cognitive and psychosocial changes occurring at this time, the increasing prominence of the peer group, and issues related to the transition from primary to secondary school.

While the program is effective with just the one year of primary intervention, research[69] has shown that prevention effects are greatly enhanced when booster sessions are included. For example, Botvin et al.[70] have shown that one year of the primary intervention of LST produced reductions of 56-67 percent in smoking without any additional booster sessions; but for those students receiving booster sessions, these reductions were as high as 87 percent. In addition, the booster sessions enhance the durability of prevention effects, so that they do not decay as much over time. LST has been shown to be effective using

a variety of service providers including outside health professionals, regular classroom teachers, and peer leaders. Peer counselors are often slightly older (high school) and almost always work in conjunction with a trained adult provider.

Research has shown that participation in the LST program can cut drug use in half.[71] These reductions (in both the prevalence and incidence)[72] of drug use have primarily been with respect to tobacco, alcohol, and marijuana use. For example, long-term follow-up data indicate that reductions in drug use produced with seventh graders can last up to the end of high school.

Evaluation research has demonstrated that this prevention approach is effective with a broad range of students. It has not only demonstrated reductions in the use of tobacco, alcohol, or marijuana use of up to 80 percent, but evaluation studies show that it also can reduce more serious forms of drug involvement such as the weekly use of multiple drugs or reductions in the prevalence of pack-a-day smoking, heavy drinking, or episodes of drunkenness.

Project LST
Key Elements

- Classroom-based three year intervention program.
- Aimed at elementary, junior and high school students.
- Designed to target the psychosocial factors associated with the onset of drug involvement.
- Developed to impact on drug-related knowledge, attitudes and norms; teach skills for resisting social influences to use drugs; and promote the development of general personal self-management skills and social skills.
- Has three main components - The first component is designed to teach students a set of general self-management skills. The second component focuses on teaching general social skills. The third component includes information and skills that are specifically related to the problem of drug abuse.
- Variety of service providers such as outside health professionals, regular teachers or peer leaders.
- Consists of 15 sessions of 45 minutes each, followed by a booster of 10 sessions in the following year and five sessions in the last year.
- Demonstrated reductions of up to 80% in the use of tobacco, alcohol or marijuana, and,
- Cited as effective and/or exemplary by several agencies.

Conclusion

Youth spend much of their time in a school environment, and schools are important places in which to provide knowledge and tools to prevent and reduce youth drug involvement. Successful school-based prevention programs, targeting those most at-risk, contribute to reduce drug-related crime. Schools provide an opportune environment to implement prevention programs that seek to reduce the risk factors and increase the protective factors of substance use and abuse and future delinquency among youth.

School-based drug prevention programs that are targeted, evidence-based, interactive, youth-focused and, engaging, have been shown to have success in reducing drug abuse. Overall, successful school-based programs have been shown to have interventions delivered by trained professionals, limited number of students, intense contact, and booster sessions for youth most at-risk at the latter stage of the intervention. These promising and effective prevention programs also often combine community partnerships with intervention components that are known to work and use trained, knowledgeable and committed personnel that can genuinely relate with and engage youth.

Early use and later problematic use are risk factors for future delinquency. Numerous studies have documented the strong link between alcohol and drug consumption and crime. Alcohol and drugs are often intimately linked to the commission of criminal acts. For example, in Canada, 14% of federal inmates reported having been under the influence of both alcohol and drugs at the time they committed their most serious offence. In total 30% of federal inmates committed their most serious crime at least under the partial influence of drugs, and 38% committed this crime at least in part under the influence of alcohol.[73] Prevention programs successful in reducing and/or preventing the number of individuals who abuse alcohol and drugs contribute to reductions in later delinquency.

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Notes

1. Health Canada, 2001: Statistics Canada, 2004, CCSA, 2005.
2. Loeber et al. 1998. "The development of male offending: Key findings from the first decade of the Pittsburgh Youth Study." *Studies in Crime and Crime Prevention,* 7: 141-172.
3. Herrenkohl et al. 2000. 'Developmental risk factors for youth violence.' *Journal of Adolescent Health*, 26: 176-186.
4. This table is an adapted version of the table on Risk and Protective Factors in Arthur and al. (2002:579-583).
5. Arthur et al., 2002.
6. Ibid.
7. Frisher et al., 2005.
8. Ibid.
9. Arthur et al., 2002:581.
10. Statistics Canada, 2006: 6.
11. Canadien Centre on Substance Abuse (CCSA), 2005.
12. Pernanen et al., 2002.
13. Jodi Lane, *Alberta Youth Experience Survey*, 2005. Alberta Alcohol and Drug Abuse Commission. 3,915 students participated in the survey. The results should be interpreted with caution because of limitations of sampling across Alberta.
14. See http://www.ccsa.ca for further Student Drug Use Statistics in Canada.
15. Weekes, et al., 1999; Canadian Public Health Association, 2004.
16. Justice Canada, 2004.
17. CCSA, 2005.
18. Davis, 2006.
19. Ibid.
20. Hammersley, 2003:1, Reuter and Stevens, 2007:33.
21. Elliot, Huizinga and Menard, 1989; Kandel and Logan, 1984.
22. Elliot et al., 1989.
23. For more information on drugs & crime, http://www.emcdda.europa.eu 'Drugs in Focus' is a series of policy briefings published by the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA), Lisbon.
24. CCSA, 2002:10, 23.
25. Health Canada, 2001; CCSA, 2005; Adlaf and Paglia 2001; Poulin, VanTil and Wilbur 1999.
26. Health Canada, 2001; CCSA, 2005.
27. The target population for the Toronto survey consists of students in grades 7, 8, and 9 attending schools in the Toronto census subdivision. 3,290 questionnaires were completed by students. It is important to keep in mind that self-reported delinquency surveys are not without their limitations; Statistics Canada, 2006:9.
28. Juristat, CCJS, Statistics Canada, 2004, *Trends in Drug Offences and the Role of Alcohol and Drugs in Crime* by Desjardins and Hotton.
29. Erickson and Butters, 2006.
30. In 2004, as part of its General Social Survey program, Statistics Canada conducted a survey on victimization and public perceptions of crime and the justice system. The target population was Canadians aged 15 years and older living in the ten provinces.
31. Criminal Justice Indicators, 2005.
32. Lopez and Sansfaçon, 2005.
33. Ibid.
34. Lo and Cheng, 2007.
35. Ireland et al., 2002.
36. Lopez and Sansfaçon, 2005.
37. Erickson and Butters, 2006.
38. Gottfredson, 2001.
39. Faggiano et al., 2005.
40. Bell et al., 1993.
41. Botvin et al., 1995.

42. Cuijpers, 2002.
43. Skara and Sussman, 2003.
44. Hallfors and Godette, 2002.
45. Gruner-Gandhi and colleagues (2007) examined the evidence used by seven prominent best-practice lists to select their model prevention programs. Their research raises questions about the process used to identify and publicize programs as successful. They found limited evidence showing substantial impact on drug use behavior at posttest (a test given to students *after* completing a lesson, intervention or program), with very few studies showing substantial impact when followed up over the longer term. Paddock (2005:31) notes that the effect of prevention on lifetime use is small, but goes on to say that the benefits of model school-based drug prevention programs exceed their cost (RAND, 2002). Gruner-Gandhi and colleagues suggest that most drug prevention programs (including some of the 'model' programs cited in this report) give a 'misleading aura of certainty' to their programs.
46. Cook, 2002 cited in Gruner-Gandhi, 2007.
47. Skara and Sussman, 2003.
48. Foxcroft 1997; Gorman in Kleinig and Einstein, 2006.
49. The programs highlighted in this paper are only select examples of promising drug prevention programs. The following websites provide further information on evidence-based substance abuse prevention programs: http://www.nrepp.samhsa.gov/, http://www.colorado.edu/cspv/blueprints/model/overview.html, http://www.promisingpractices.net/programs_indicator_list.asp?indicatorid=4.
50. Dusenbury and Falco 1995, Botvin et al., 1995, Tobler 2000, Skara and Sussman 2003.
51. By effective we mean programs whose impacts have been measured via rigorous empirical evaluations. Ideally, a program's effectiveness is established in various settings, at different times. This is why we have not included what may be the best known school-based drug abuse prevention program: DARE. In effect, numerous evaluation studies and recent meta-analyses have shown that DARE is ineffective. The new reformed DARE, its 10th iteration, has not been evaluated yet to our knowledge.
52. *Targeted* interventions can be selective and/or indicated. Selective interventions are activities designed for vulnerable individuals whose risk of developing a disorder (i.e. substance abuse) is significantly higher than average. *Indicated* interventions are activities designed for individuals in high-risk environments or already engaged in substance abuse, identified as having minimal but detectable signs foreshadowing disorder or having biological markers indicating predisposition for disorder but not yet meeting diagnostic levels.
53. *Universal* interventions are activities that target the whole population group that has not been identified on the basis of individual risk. Many school-based programs are universal in nature and are delivered to all students in chosen grade levels.
54. For more information on the project SUCCESS, visit the following website: http://www.sascorp.org/school.htm.
55. See http://www.sascorp.org/school.htm.
56. See http://modelprograms.samhsa.gov/pdfs/model/Success.pdf for more information.
57. A drug use index was created by summing the scores of self-reported use of 13 drugs: tobacco, alcohol, marijuana and other drugs.
58. Please note that the original source, www.sascorp.org, did not provide information regarding the location nor the timeframe of the second study. For more information on this evaluation, please contact the author, Ellen R. Morehouse at sascorp@aol.com.
59. For more information on the project TND, visit the following website: http://www.promoteprevent.org/Publications/EBI-factsheets/Project_Towards_No_Drug_Abuse.pdf
60. For more information on the evaluation of TND, check the following web addresses; http://www.cceanet.org/Research/Sussman/tnd.htm, http://tnd.usc.edu/evaluate.php?PHPSESSID=3540556e6eea10af289c1509ab2a0004.
61. Sussman et al., 1998.
62. Sussman et al., 2002: 354-365.
63. For more information on the project ALERT, visit the following websites: http://www.colorado.edu/cspv/blueprints/promising/programs/BPP13.html; http://www.promoteprevent.org/Publications/EBI-factsheets/Project_ALERT.pdf; http://www.rand.org/pubs/research_briefs/RB4560/index1.html; http://www.projectalert.best.org/Default.asp?bhcp=1.
64. Faggiano et al., 2005; Ringwalt 2002, NIDA 2003:29; Ghosh-Dastidar et al., 2004.
65. Ennett et al., 2003.
66. RAND, 2004.

67. Sharon F. Mihalic of the Center for the Study and Prevention of Violence, (Blueprints Initiative), has compiled a very useful document on 'Agency and Practitioner Rating Categories and Criteria for Evidence Based Programs.' The Matrix lists approximately 300 programs that have been rated by each agency as effective.
68. For more information on the project LST, visit the following websites :
http://www.nida.nih.gov/NIDA_notes/NNvol18N5/School.html;
http://www.druginfo.adf.org.au/browse.asp?ContainerID=drug_education_approaches_in_s;
http://www.lifeskillstraining.com/
69. Botvin et al., 2001; Griffin et al., 2003.
70. Botvin et al., 1998.
71. Ibid.
72. Prevalence: proportion of persons in a population who have reported some involvement in a particular offense. Incidence: the number of offenses which occur in a given population during a specified time interval.
73. Pernanen et al., 2002.